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EXAMINER	
DUNN, DARRIN D	

ART UNIT	PAPER NUMBER
2121	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/687,955	MAY, ROBERT ALVIN	
	Examiner	Art Unit	
	DARRIN DUNN	2121	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *18 March 2009*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1,3-6,8-11,13-16,18-21,23-26,28-30,35,37-40 and 42* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,3-6, 8-11, 13-16, 18-21, 23-26, 28-30, 35, 37-40, and 42* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *10/23/2008*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

1. The Office Action is responsive to the communication filed on 03/18/2009.

2. Claims 1,3-6, 8-11, 13-16, 18-21, 23-26, 28-30, 35, 37-40, and 42 are pending.

Claim Rejections - 35 USC § 112

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claims 1 and 11 recite the limitation "the apparatus." There is insufficient antecedent basis for this limitation in the claim.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

6. The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

6. Claims 1, 3-6, 8-10, 21, 23-26, 28-30, 35, 37-40, and 42 are rejected under 35 U.S.C. 103(a) as being anticipated by Folkes et al. (USPN 2003/0218982) in view over J. Moy (Hitless OSPF Restart | February 2002), and in further view over Dinker et al. (USPN 20040098490)

7. As per claims 1, 21, and 35 Folkes et al. teaches a routing device ([FIG 2A -22]) comprising:

a dynamic routing module -24, operable to be executed at a particular time ([0024], [0026] e.g., backup protocol processor comprises a Backup OSPF-24, i.e., dynamic routing module, assumes control upon failover, i.e., particular time);

a configuration manager (as set forth in the instant application is a device that stores state information. The active OSPF, as per paragraph 0029, sends messages describing its current dynamic state), coupled to a second routing device -21 (e.g., active protocol processor), operable to store configuration information associated with operational characteristics of a second dynamic routing module -23 associated with the second routing device -21 ([0027],, [0028], [0029], [FIG 2B- 22] e.g., active OSPF instance, i.e., configuration manager, stores state information corresponding to the active protocol processor, i.e., second dynamic routing module. This is accomplished via synchronization. It is interpreted that the Active OSPF stores and transmits state information to the backup OSPF as to maintain state synchronization. The stored state information corresponds to global ASBR, global router ID, state of each OSPF area, etc);

a network information module, operable to store routing information from the second routing device ([0039] e.g., network information module, i.e., LSA database)

wherein the dynamic routing module is executed upon an indication that the second dynamic routing module is no longer operating ([0007, [0026] e.g., the terminology "no longer operating" is interpreted as a failure –OSPF router fails);

wherein the dynamic routing module -24 is configured to operate according to said configuration information ([0027] e.g., backup OSPF instance executes recovery functions and assumes the functionality as the former active OSPF instance).

Folkes et al. discloses a communication module operable to transmit a hitless restart ([FIG 2A-24] e.g., operable is interpreted as "capable of being put into use, operation, or practice. In the instant case, the Backup OSPF module or backup processor embodying the OSPF module is capable of implementing the OSPF enhancements for hitless restart as depicted in J. Moy (page 1 paragraph "in a nutshell, the OSPF enhancements for a hitless restart are as follows…". As per applicants published application -0064, router initiates a hitless restart. A router is interpreted as the hardware or communication module for transmitting a hitless restart). Moreover, Folkes et al. teaches a routing device configured to route information for the cluster ([0005], [0008] e.g., OSPF router implements an algorithm to calculate packet forwarding table information….forwarding tables route transit traffic through a shared central switch fabric. As backup instance of the active, it is interpreted that the router will continue to route information upon replacing the active instance.)

However, Folkes et al. does not teaches transmitting a hitless restart event based upon an event associated with said execution of said dynamic module, said hitless restart event signaling network enabled devices to continue forwarding packets to a cluster of network enabled devices. J. Moy teaches transmitting the aforementioned limitations ([page 2 lines 1-5] e.g., router

announces intention to perform a hitless restart, and asking for a "grace period.", i.e., transmitting a hitless restart, and neighbors continue to announce the restarting router in the their LSAs as if it were fully adjacent, i.e., continuing to forward packets. It is implied that maintaining adjacency during a failover will function to continue routing packets).

Therefore, at the time the invention was made, one of ordinary skill in the art would have motivation to implement a hitless restart by incorporating the OSPF enhancements as taught by J. Moy. Routers implement a separation of control and forwarding functions as to allow packet forwarding in the event control software is restart/reloaded. Given the potential that the control software in Folkes et al. may be restarted, it would have been advantageous to modify Folkes et al. to further maintain its data forwarding capability by implementing a hitless restart. One of ordinary skill in the art would have been capable of applying the known method of hitless restart as to further achieve seamless data forwarding as taught by Folkes et al. ([0026 lines 4-6])

However, Folkes, as modified, does not teach a cluster of network enabled devices, each of the enabled devices in the cluster configured to communicate with network devices external to the cluster through a single network address, the routing device configured to route information for the cluster. Second, Folkes does not teach wherein the apparatus is configured to receive one or more incoming messages indicating the single network address as a destination address, and to route one or more incoming messages to a particular network enabled device in the cluster of network enabled devices.

Dinker et al. teaches a cluster ([0024]) with multiple network enabled devices ([0025]) configured to communicate with network devices external to the cluster through a single network address ([0030], [0031] e.g., cluster ID uniquely identifying a single cluster), the routing device

configured to route information for the cluster ([0031] e.g., cluster router). Additionally, Dinker teaches wherein the apparatus (e.g., cluster router) is configured to receive one or more incoming messages indicating the single network address as the destination address ([0031] e.g., cluster router is configured to route client communications and configured to route a client communication to any node within the cluster), and to route one or more incoming messages to a particular network enabled device (e.g., node) in the cluster of network enabled devices ([0031] e.g., routing client communication to a node within the cluster)

Therefore, at the time the invention was made, one of ordinary skill in the art would have motivation to cluster a group of nodes together as to provide high availability properties such as load balancing, failover, and scalability. Folkes et al., as modified, is applicable to a cluster of nodes. Dinker et al. teaches how client communications are routed to a cluster where each cluster is uniquely identified with a cluster ID. Since the combination enables greater availability and other properties within a network, it is beneficial to enable the redundant router configuration, as taught by Folkes, to at least function with a cluster of nodes, as taught by Dinker et al.

8. As per claims 3, 23, and 37, Folkes et al. teaches the device of claim 1 wherein said dynamic routing module implements an OSPF routing protocol ([0024] e.g., OSPF).

9. As per claims 4, 24, and 38, Folkes et al. teaches the device the routing device of claim 1 wherein said particular time is associated with a non-functioning state of the second dynamic routing module ([0026] e.g., in the event the active protocol processor fails, implying the active OSPF instance is no longer capable of functioning).

10. As per claims 5, 25, and 39, Folkes et al. teaches the routing device of claim 1 wherein said particular time is associated with a predetermined time ([0026] e.g., maintenance, i.e., particular time).

11. As per claims 6, 26, and 40, Folkes et al. teaches the wherein said particular time is associated with network traffic ([0018] e.g., TCP failure).

12. As per claims 8, 28, and 42, Folkes et al. teaches the routing device of claim 1, wherein at least a portion of said stored configuration information is stored in a device different from said routing device ([FIG 2A] e.g., active OSPF instance –23 is a device different that that of the backup OSPF instance –24, i.e., routing device. According to [0029], the active OSPF instance maintains its current dynamic state, network interface state information, etc).

13. As per claims 9 and 29, Folkes teaches the routing device of claim 11, wherein another device ([Figure 2A-element 22]) transmits a hitless restart (e.g., as modified, active and backup routers would be configured to transmit a hitless restart) upon an event associated with the execution of the means for dynamic routing (e.g., upon failure, i.e., event, of an active OSPF, the backup OSPF becomes active ([0026]. The backup processor is configured to transmit a hitless restart)

14. As per claims 10 and 30, Folkes et al. teaches the routing device of claim 1 further comprising a communications module ([0052]-retransmit mechanism) operable to receive a reply from another routing device associated with the receipt of a hitless restart ([0052] e.g., when initiating a hitless restart, as per Moy, where router X wants to ensure each neighbor acknowledges the grace-LSA. A communication module would be an obvious means for receiving replies from neighboring devices associated with the hitless/graceful restart. Folkes

teaches a re-transmit mechanism that one of ordinary skill in the art could configure to transmit and receive messages from neighbors)

Section 112, 6th paragraph:

15. Claims 11, 13-16, 18-20 are rejected under 35 U.S.C. 103(a) as being anticipated by Folkes et al. (USPN 2003/0218982) in view over J. Moy (Hitless OSPF Restart | February 2002), and in further view over Dinker et al. (USPN 20040098490)

16. As per claim 11, Folkes et al. teaches a routing device comprising:

a means for dynamically routing datagrams, configured operable to be executed at a particular time **(Applicant's published application refers to a dynamic routing module-18. The dynamic routing module is further referred to as an instantiation of an OSPF package ([0041-0043]. Folkes teaches a backup OSPF instance-24, i.e., means for dynamically routing datagrams**)

a means for configuring the means for dynamically routing, coupled to a second routing device, configured operable to store configuration information associated with operational characteristics of a second means for dynamically routing datagrams associated with the second routing device (**Applicant's published application refers to a means for configuring the means for dynamically routing as a configuration manager module-20 ([0045]) Folkes teaches an active OSPF module, i.e., configuration manager, for configuring the backup OSPF instance.([0029-0036])**; and

means for storing network information, configured operable to store routing information from the second routing device (**Applicant's published application refers to a means for**

storing network information as a network information module ([0020]) for storing routing information. Folkes teaches an active OSPF instance for maintaining forwarding tables ([0008] e.g., forwarding tables are interpreted as storing routing information) ; and

means for transmitting a hitless restart based upon an event associated with the execution of the means for dynamic routing, the hitless restart event signaling network enabled devices to continue forwarding packets to a cluster of network enabled devices, each of the network enabled devices in the cluster configured to communicate with network devices external to the cluster being through a single network address, the routing device configured to route information for the cluster (**Applicant's published application refers to a means for transmitting a hitless restart as a router. Applicant provides that the routing device-16 may initiate a graceful restart signal ([0064]). Folkes, as modified, supra claim 1, where router, i.e., means for implementing a hitless/graceful restart**)

wherein the apparatus is configured to receive one or more incoming messages indicating the single network address as a destination address, and to route the one or more incoming messages to a particular network enabled device in the cluster of network enabled devices; (supra claim 1 discussion)

wherein the means for dynamically routing is executed upon an indication that the second means for dynamically routing is no longer operating (**e.g., a means for dynamically routing -OSPF instance-24)**

wherein the means for configuring configures the means for dynamically routing according to the configuration information (e.g., **active OSPF mirrors state information to the backup**

OSPF –storing configuration information, i.e., state information. See paragraph 0029-0036)

7. As per claim 13, Folkes et al. teaches the device of claim 1 wherein said dynamic routing module implements an OSPF routing protocol ([0024] e.g., OSPF).

8. As per claim 14, Folkes et al. teaches the device the routing device of claim 1 wherein said particular time is associated with a non-functioning state of the second dynamic routing module ([0026] e.g., in the event the active protocol processor fails, implying the active OSPF instance is no longer capable of functioning).

9. As per claim 15, Folkes et al. teaches the routing device of claim 1 wherein said particular time is associated with a predetermined time ([0026] e.g., maintenance, i.e., particular time).

10. As per claims 16, Folkes et al. teaches the wherein said particular time is associated with network traffic ([0018] e.g., TCP failure).

11. As per claim 18, Folkes et al. teaches the routing device of claim 1, wherein at least a portion of said stored configuration information is stored in a device different from said routing device ([FIG 2A] e.g., active OSPF instance –23 is a device different that that of the backup OSPF instance –24, i.e., routing device. According to [0029], the active OSPF instance maintains its current dynamic state, network interface state information, etc).

12. As per claim 19, Folkes teaches the routing device of claim 11, wherein another device ([Figure 2A-element 22]) transmits a hitless restart (e.g., as modified, active and backup routers would be configured to transmit a hitless restart) upon an event associated with the execution of

the means for dynamic routing (e.g., upon failure, i.e., event, of an active OSPF, the backup OSPF becomes active ([0026])

13. As per claim 20, Folkes et al. teaches the routing device of claim 1 further comprising a communications module ([0052]-retransmit mechanism) operable to receive a reply from another routing device associated with the receipt of a hitless restart ([0052] e.g., in response to the Hello packets, a response is expected. Also, see Moy, Entering hitless restart (page 4), where router X wants to ensure each neighbor acknowledges the grace-LSA. A communication module would be an obvious means for receiving replies from neighboring devices associated with the hitless/graceful restart)

Conclusion

14. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

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Any inquiry concerning this communication or earlier communications from the examiner should be directed to DARRIN DUNN whose telephone number is (571)270-1645. The examiner can normally be reached on EST:M-R(8:00-5:00) 9/5/4.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Albert DeCady can be reached on (571) 272-3819. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/DD/
05/18/09

/Albert DeCady/
Supervisory Patent Examiner
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